ALTAMONT CORRIDOR RAIL PROJECT

Project Environmental Impact Report/ Environmental Impact Statement

PRELIMINARY

Alternatives Analysis Report Executive Summary

February 2011

U.S. Department of Transportation
Federal Railroad Administration

CALIFORNIA
High-Speed Rail Authority

THE ALTAMONT CORRIDOR RAIL PROJECT

S.0 SUMMARY

The California High-Speed Rail Authority (the Authority) and the Federal Railroad Administration (FRA) are studying alternative alignments and stations for a regional intercity and commuter passenger rail project between Stockton and San José. This report documents the evaluation of these alternatives and identifies feasible and practicable alternatives to carry forward for environmental review and evaluation in the *Altamont Corridor Rail Project Environmental Impact Report/Environmental Impact Statement* (EIR/EIS) under the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA).

S.1 ALTAMONT CORRIDOR PROJECT BACKGROUND

The Altamont Corridor was studied by the Authority and identified as a candidate route to the San Francisco Bay Area in the *Statewide High Speed Train* (*HST) System Program EIR/EIS*. The Authority and the FRA further examined the corridor in the 2008 *Bay Area to Central Valley HST Program EIR/EIS* and the *2010 Revised Bay Area to Central Valley HST Program EIR/EIS*, and selected the Pacheco Pass via Gilroy as the preferred route for the California HST System between the Bay Area and the Central Valley for a number of reasons, including the ability to serve San Francisco without requiring a water crossing of San Francisco Bay, and providing operational benefits and the lowest travel times between the Bay Area and southern California. However, the 2008 and 2010 versions of the *Bay Area to Central Valley HST Program EIR/EIS* note that the Pacheco Pass route would not provide faster travel times to the Bay Area for those Central Valley communities located north of Merced. The Altamont Corridor Rail Project has the potential to serve the populous in the Interstate 580 (I-580) corridor and reduce traffic along I-580 and Interstate 205 (I-205), which are the Altamont Corridor's main east-west arteries. Accordingly, the Authority has identified improving the Altamont Corridor as a complementary regional corridor to the California HST System

The Authority has worked under agreement with a regional partner, the San Joaquin Regional Rail Commission (SJRRC), to plan a joint-use rail line through the Altamont Pass that would support new regional intercity and commuter passenger rail services operating in northern California between Stockton and San José as well as eastern and southern Alameda County. The Authority and the SJRRC are proposing to develop the a new joint-use rail line to improve connectivity and accessibility between the northern San Joaquin Valley and the Bay Area. The rail line would be designed and equipped to accommodate electrified lightweight passenger trains and could be used by HST-compatible equipment.

The development of the Altamont Corridor Rail Project as a complement to the California HST System is consistent with the Metropolitan Transportation Commission's (MTC's) *Bay Area Regional Rail Plan*, which identified the Altamont Corridor as a key future northern California regional rail route and also noted that development of this corridor in conjunction with implementation of the California HST System could provide greater benefits to the state and region. The *Altamont Corridor Rail Project EIR/EIS* will build upon the *Bay Area Regional Rail Plan* and upon relevant decisions made with the *Statewide HST System Program EIR/EIS* and the *Bay Area to Central Valley HST Program EIR/EIS*.

To initiate project planning, the Altamont Corridor Partnership Working Group (the Working Group) was established by the Authority to bring together local partners for the purpose of identifying goals, objectives, and key features of a joint-use regional rail improvement in the Altamont Corridor. Members include the San Joaquin Council of Governments, California Partnership for the San Joaquin Valley, Great Valley Center, Tri-Valley Policy Advisory Committee, Alameda County Congestion Management Agency, MTC, and Sacramento Area Council of Governments, along with service providers including the Altamont Commuter Express (ACE), San Francisco Bay Area Rapid Transit District (BART), San Mateo County Transit (SamTrans), Amtrak Capitol Corridor, and Caltrain. The Working Group recognizes the importance of the Altamont Corridor for regional transportation needs and has reached consensus on the corridor limits (Stockton to San José); principal features, including key intermodal connections; and project goals and objectives, which include improving ACE service in the near term and developing capability to accommodate connections to the California HST System and HST-compatible equipment. The Working

Group participated actively during the alternatives analysis evaluation providing feedback from their specific areas of expertise and authority. The Working Group will continue to support the project as it moves forward in the planning and implementation process.

S.2 RESULTS FROM THE PRELIMINARY ALTERNATIVES ANALYSIS

This alternatives analysis report (AA Report) incorporates conceptual engineering information and identifies feasible and practicable alternatives to carry forward for environmental review and evaluation in the *Altamont Corridor Rail Project EIR/EIS.*

To facilitate the analysis of potential alignment alternatives and station location and design options across the more than 85-mile-long Altamont Corridor, the overall alignment was divided into eight geographical areas:

- San José to Fremont (Area 1.1).
- Fremont to I-680/State Route (SR) 84 (Area 1.2).
- Union City to I-680/SR 84 (Area 1.3).
- Tri-Valley (Area 2).
- Altamont Pass (Area 3).
- Tracy (Area 4.1).
- San Joaquin River to Stockton (Area 4.2).
- San Joaquin River to Ripon/Escalon Vicinity (Area 4.3).

The Authority and the FRA, in addition to performing engineering and environmental analysis, have engaged the agencies, public, and communities throughout the Altamont Corridor under many forums that include: meetings, field inspections, project team input and review, qualitative and engineering assessment of issues, and use of geographic information systems (GIS); they continue to incorporate their input. Identification of alternatives and their evaluation in this report has benefitted from the contributions of all of these parties. The observations below outline some of the key highlights from the work and input received to date:

- This document recommends not carrying forward any alignments through the Don Edwards San Francisco Bay National Wildlife Refuge. An alignment through the refuge would incur substantial environmental impacts to a number of threatened and endangered species and could create obstacles to future restoration of the former salt ponds to tidal marsh and open water habitats. It would be highly difficult to reach approval for design and permitting of such an alignment from the U.S. Fish and Wildlife Service and other state and federal resource agencies.
- Connections to Oakland, Oakland International Airport, and San Francisco can be made through connections to BART in Livermore and/or Fremont.
- Although some parties have urged an alignment through the Tri-Valley area along I-580 and I-680 as a means to minimize noise and visual environmental quality impacts and natural resource impacts, this evaluation found such a freeway alternative to be impracticable as a result of substantial constructability issues and risk due to extensive construction in and around the freeways and due to the need to accommodate a future planned BART extension.
- There are notable tradeoffs in the Tri-Valley area among downtown alignments, and south-of-Pleasanton/Livermore alignments in terms of travel time, ridership/revenue potential, noise and visual environmental quality impacts, and natural resource impacts. City of Pleasanton representatives have expressed their opposition to an alignment through downtown Pleasanton, whether at-grade, aerial, or tunnel, and City of Livermore representatives expressed concern about an aerial alignment through downtown Livermore.
- For the south-of-Livermore alignment (which bypasses downtown Pleasanton and Livermore), representatives of the Livermore Area Recreation and Park District (LARPD) and the East Bay Regional Park District (EBRPD) urged the avoidance of Sycamore Grove Park and Arroyo Del Valle

Regional Park. The alignment recommended to be carried forward crosses Sycamore Grove Park in tunnel to avoid disruption to the park itself.

- There are tradeoffs in Tracy between a downtown alignment and station with greater noise and visual environmental quality impact but greater transit-oriented development (TOD) potential, and a southern alignment with less noise and visual environmental quality impact and less TOD potential. It is recommended that both alternatives be carried forward for further analysis.
- There are a number of phasing options to implement the project in discrete phases. There are also options, should funding ultimately be a limiting factor, to improve regional and intercity service by building one or more of the phases without necessarily completing the entire project from Stockton to San José. Preliminarily identified phasing options include improvements from Stockton to Livermore, from Livermore to Fremont, and from Livermore to Union City as well as incremental improvements to the ACE service.

Figure S-1 shows the alignment alternatives recommended to be carried forward for evaluation in the *Altamont Corridor Rail Project EIR/EIS*. Figures S-2a through S-2c show both the alignment alternatives recommended to be carried forward and those recommended to be withdrawn from further analysis. Table S-1 at the end of this section summarizes by alignment alternative within each area the proposed decisions and rationale regarding the withdrawal or carrying forward of the alignment into the *Altamont Corridor Rail Project EIR/EIS*.

Alignment and station alternatives recommended for continued study are listed below:

- San José to Fremont:
  - *Alignments:* Adjacent to the UP Coast Subdivision, SR 237, and I-880 (Alternative EB-4); adjacent to the UP Coast Subdivision, on Trimble Road, and I-880 (Alternative EB-5); adjacent to the UP Coast Subdivision, on Trimble Road, and adjacent to the UP Warm Springs Subdivision (Alternative EB-6).
  - *Stations:* San José Diridon, Santa Clara, Great America, First Street/Trimble, Tasman/I-880, Fremont Centerville ACE, Tasman/Great Mall, Warm Springs BART.
- Fremont to I-680/SR 84:
  - *Alignments:* Parallel to I-680 from Warm Springs BART to near I-680/SR 84 (Alternative EBWS-1); adjacent to UP Warm Springs Subdivision, and tunnel south of Niles Canyon (Alternative EBWS-2).
  - *Stations:* Warm Springs BART, I-680/SR 84.
- Union City to I-680/SR 84:
  - *Alignments:* In UP Oakland Subdivision, Niles Junction, and Niles Tunnel (Alternative EBUC-1).
  - *Stations:* Union City BART, I-680/SR 84.
- Tri-Valley:
  - *Alignments:* Along I-680, in former Southern Pacific Railroad (SP) in downtown Pleasanton on aerial, adjacent to UP on aerial in downtown Livermore, and adjacent to UP at grade east of downtown Livermore (Alternative TV-2a); along I-680, in former SP in downtown Pleasanton in tunnel, Railroad Avenue in downtown Livermore in tunnel, and former SP east of downtown Livermore (Alternative TV-2b); along SR 84, south of Livermore, east of Vasco Road, and adjacent to UP east of Vasco Road (Alternative TV-4).
  - *Stations:* Downtown Pleasanton (SP), Downtown Pleasanton (UP), Downtown Livermore, Vasco Road (UP), Vasco Road (SP).
- Altamont Pass:
  - *Alignments:* Northern alignment near I-580 (Alternative ALT-1); southern alignment through Patterson Pass (Alternative ALT-2).
  - *Stations:* none

- Tracy:
  - *Alignments:* Downtown Tracy (Alternative T-1); south of Tracy (Alternative T-2).
  - *Stations:* Downtown Tracy, South Tracy.
- San Joaquin River to Stockton:
  - *Alignments:* Former SP, I-5, former SP, UP through rail yards and in downtown Stockton (Alternative TS-1); adjacent to and east of UP, adjacent to UP, UP in downtown Stockton (Alternative TS-3); adjacent to and east of UP, along Airport Way, UP in downtown Stockton (Alternative TS-4).
  - *Stations:* Lathrop/I-5, Lathrop/Manteca ACE (West Yosemite Avenue), Downtown Stockton (Cabral).
- San Joaquin River to Ripon/Escalon Vicinity:
  - *Alignments:* Adjacent to UP, turn back, adjacent to UP through Manteca, adjacent to UP south to Modesto (Alternative TM-1b); adjacent to UP, SR 120 and SR 120 plan line, adjacent to BNSF to Modesto (Alternative TM-2a); SR 120, adjacent to UP south to Modesto (Alternative TM-2b).
  - *Stations:* Lathrop/Manteca ACE (West Yosemite Avenue), Manteca/SR 120.

S.3 ALTERNATIVES ANALYSIS EVALUATION MEASURES

The alignment alternatives and station location and design options carried forward for detailed evaluation in this AA Report were assessed for each of the project goals and objectives and evaluation measures. This information was then used to determine which alternatives are feasible and practicable and should be carried forward into preliminary engineering design and environmental review as part of the *Altamont Corridor Rail Project EIR/EIS*. The primary evaluation measures are listed below:

- Design objectives (including travel time, length, intermodal connections and cost).
- Land use (including consistency with land use and general plans, need for temporary construction easements, and state highway encroachment).
- Constructability (including potential rail conflicts, utilities, residential and business displacement, and business access impacts).
- Community impacts (including residential access, traffic congestion around stations, and traffic effects at at-grade crossings).
- Natural resources (including impacts on wetlands/streams, natural areas, designated critical habitat and threatened and endangered species habitat, parklands and important farmlands).
- Environmental quality (including noise/vibration impacts, scenic roadways and vistas, geologic and soils constraints, and hazardous materials).

S.4 PUBLIC AND AGENCY OUTREACH EFFORTS

In October and November 2009, formal scoping was conducted in accordance with NEPA and CEQA. Four scoping meetings (in Stockton, Livermore, Fremont, and San José) were held. Scoping comments were received verbally in person, in writing, and via email. In addition to the formal scoping meetings, numerous other meetings and presentations were conducted with stakeholders, agencies, and community organizations. A scoping report was prepared that presented all input provided by local, state, and federal agencies; stakeholders; and members of the general public.

A project website (http://www.cahighspeedrail.ca.gov/lib_Altamont_Corridor.aspx) was created and includes a project overview; timeline; library of important documents; and opportunities to submit feedback, join the mailing list, or ask questions about the project.

With input from the scoping process, preliminary alignment alternatives and station locations were identified and presented at the Authority's board meeting on May 6, 2010. Presentations were also made

to a variety of business and community groups, and telephone conversations were held with individuals including neighbors in one portion of Livermore.

The preliminary alternatives were developed with input and guidance from numerous city and county government agencies and transportation agencies in 2010, including:

- Altamont Corridor Partnership Working Group (monthly meetings throughout 2010).
- Technical Working Group meetings (in March and August 2010) with staff-level participants from cities, counties, and transit/transportation agencies in the four-county study area.
- Meetings with the Livermore Area Recreation and Park District, City of Santa Clara Transportation Department, and Alameda County Supervisor Scott Haggerty.

Meetings were also held with environmental resource agencies on August 19, 2010 in Stockton and on August 20, 2010 in Fremont. In attendance were the U.S. Fish and Wildlife Service and the U.S. Environmental Protection Agency.

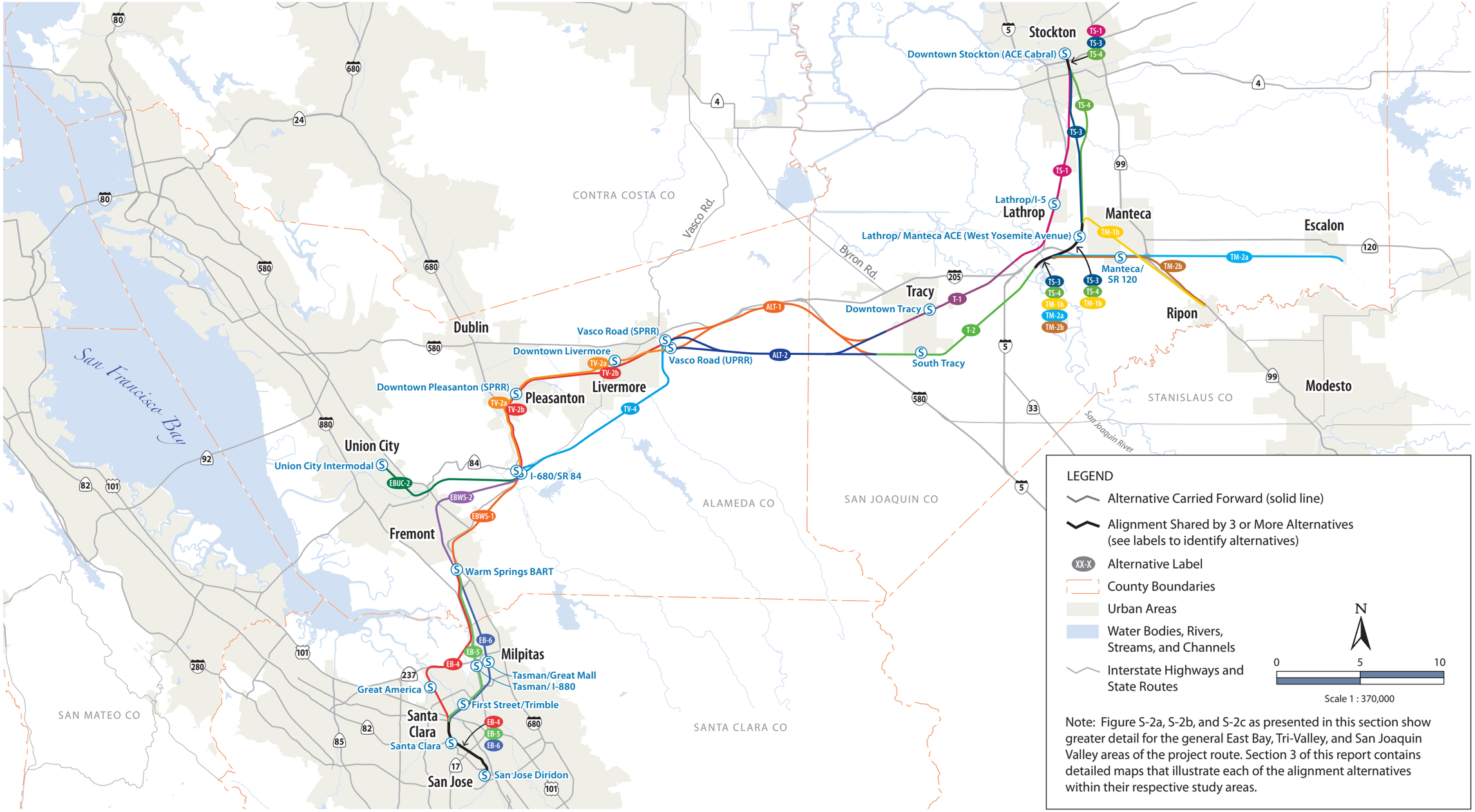
The next major phase of outreach and public meetings will occur in March 2011 to provide opportunities for the public to review the information in this AA Report and offer feedback and suggestions. Public input is encouraged now, at this critical stage in the planning process, so that it may be included in the supplemental AA Report and considered during preparation of the *Altamont Corridor Rail Project EIR/EIS*, which will be prepared in 2011–2013.

S.5 NEXT STEPS

This AA Report informs the project description for the *Altamont Corridor Rail Project EIR/EIS*. It also sets parameters for the next level of design and environmental analysis. This ongoing work will provide the Authority, the FRA, and the communities in the Altamont Corridor more details and a fuller picture of the design options in each area and a comprehensive vision of the entire corridor.

As the engineering and environmental work continues, the Authority and SJRCC will continue to meet and engage the Working Group, local cities, counties, and resources agencies in the corridor in a discussion about the various alternatives. If deemed necessary by the lead agencies, a supplemental AA Report will consider feedback received on this preliminary AA Report and will discuss how the AA will inform the detailed engineering, environmental, and outreach activities on the Altamont Corridor. At the conclusion of this process, the alternatives that are determined feasible will be evaluated in the *Altamont Corridor Rail Project EIR/EIS*, which is currently scheduled for public comment in 2013.

Figure S-1
Alignment and Station Alternatives Carried Forward for Evaluation in the EIR/EIS



Note: Figure S-2a, S-2b, and S-2c as presented in this section show greater detail for the general East Bay, Tri-Valley, and San Joaquin Valley areas of the project route. Section 3 of this report contains detailed maps that illustrate each of the alignment alternatives within their respective study areas.

Figure S-2a
Alignment and Station Alternatives Withdrawn or Carried Forward for Further Evaluation in the EIR/EIS

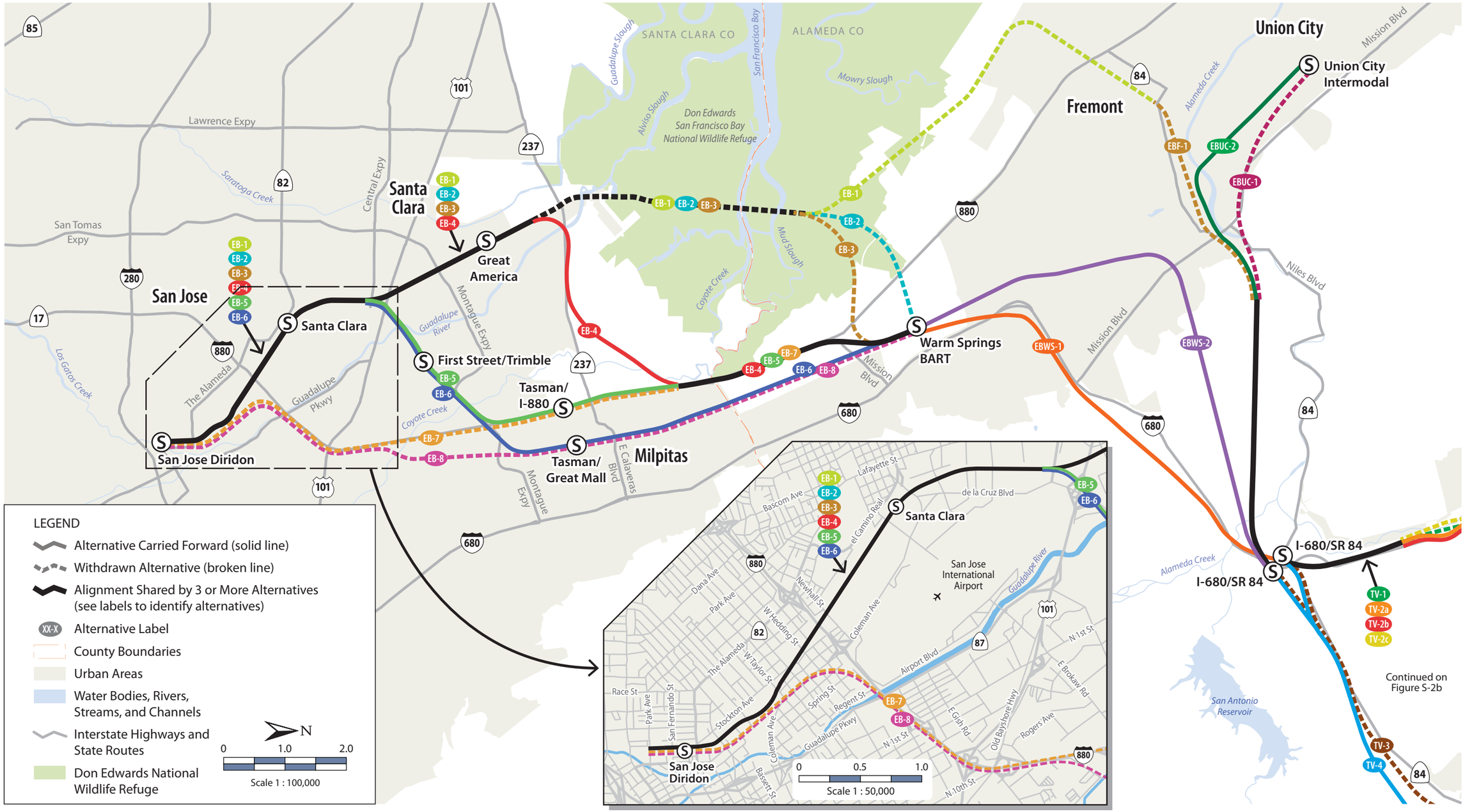


Figure S-2b
Alignment and Station Alternatives Withdrawn or Carried Forward for Further Evaluation in the EIR/EIS

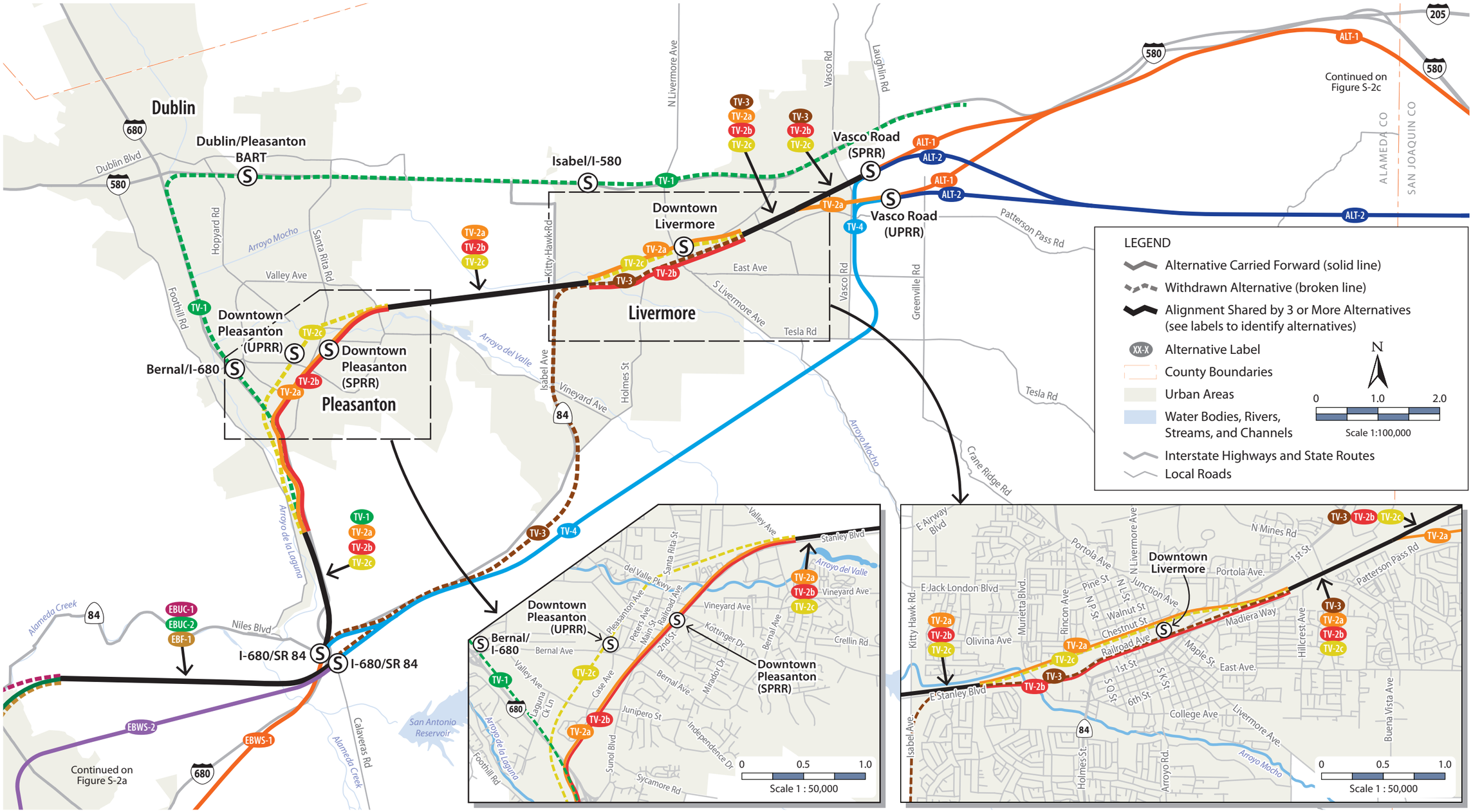


Figure S-2c
Alignment and Station Alternatives Withdrawn or Carried Forward for Further Evaluation in the EIR/EIS

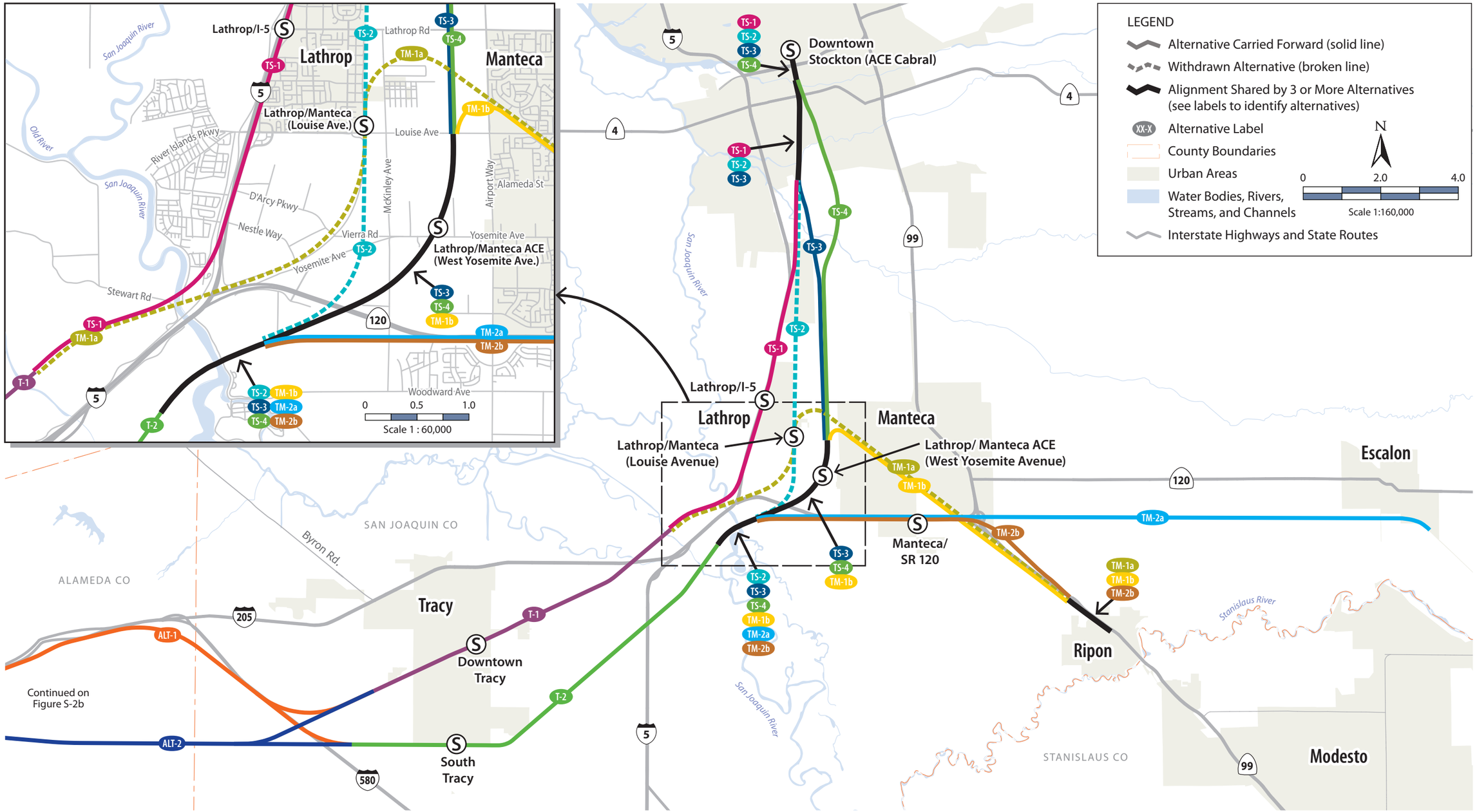


Table S-1
Alignment Alternatives and Station Location Options Carried Forward to EIR/EIS and those Withdrawn

Altamont Corridor Rail Project Alignment Alternatives and Station Location Screening Results[1]													
Alternative	Description		Decision		Rationale to Carry Forward or Withdraw Alternative (P = Primary reason for withdrawal; S = Secondary reason for withdrawal)							
	Alignment	Stations	Carried Forward	Withdrawn	Meets Purpose and Need?	Design Objectives—Operating and Capital Cost	Design Objective—Connectivity/Accessibility	Design Objective—Ridership/Revenue Potential	Land Use—Land Use Compatibility	Constructability—Construction Difficulty/Right-of-Way Acquisition Risk	Natural Resources and/or Environmental Quality	
San Jose to Fremont												
EB-1	In Caltrain right-of-way, adjacent to UP Coast Subdivision, Adjacent to UP Centreville Line	San José Diridon Santa Clara Great America Fremont Centerville		X	Yes			S	S	S	P	Greater natural resource impacts due to crossing of Don Edwards San Francisco Bay National Wildlife Refuge. Impracticable due to constructability risks resulting from extensive property acquisition requirements particularly in the Fremont Centerville and due to the slowest service time of alternatives in area. Greater residential displacement and noise and visual environmental quality impact in the Fremont Centerville Area (in combination with Alternative EBF-1) than other alternatives.
EB-2	In Caltrain right-of-way, adjacent to UP Coast Subdivision, south of Grimmer	San José Diridon Santa Clara Great America Warm Springs BART		X	Yes				S		P	Greater natural resource impacts due to crossing of Don Edwards San Francisco Bay National Wildlife Refuge and the Pacific Commons vernal pool mitigation complex.
EB-3	In Caltrain right-of-way, adjacent to UP Coast Subdivision, south of Cushing, Adjacent to UP Warm Springs Subdivision	San José Diridon Santa Clara Great America Warm Springs BART		X	Yes				S		P	Greater natural resource impacts due to crossing of Don Edwards San Francisco Bay National Wildlife Refuge and the Pacific Commons vernal pool mitigation complex.
EB-4	In Caltrain right-of-way, adjacent to UP Coast Subdivision, SR 237, I-880	San José Diridon Santa Clara Great America Warm Springs BART	X		Yes							Opportunities for multiple stations and connections to other transit services, access to the Great America station (with favorable ridership/revenue potential), avoidance of natural resource impacts due to elimination of refuge crossing and lowest costs of the alternatives that do not cross the refuge.
EB-5	In Caltrain right-of-way, adjacent to UP Coast Subdivision, Trimble, I-880	San José Diridon Santa Clara First Street/Trimble Tasman/I-880 Warm Springs BART	X		Yes							Provides service to a different commercial area (First Street/Trimble Road) than Alternative EB-4, has lower noise and visual environmental quality impacts than other alternatives while avoiding the natural resource impacts associated with refuge crossing.
EB-6	In Caltrain right-of-way, adjacent to UP Coast Subdivision, Trimble, Adjacent to UP Warm Springs Subdivision	San José Diridon Santa Clara First Street/Trimble Tasman/Great Mall Warm Springs BART	X		Yes							Multiple opportunities for connectivity and service in high employment centers and regional destinations. Moderate costs among all area alternatives.

[1] As described in Chapter 2, all evaluation criteria were evaluated for each alternative. This table only mentions those that ultimately proved to be a rationale to carry an alternative forward or withdraw an alternative. For example, all alternatives were evaluation for community impacts (in terms of property access disruption and traffic effects, but there were no alternatives that were recommended for withdrawal due to these evaluation criteria.

Altamont Corridor Rail Project Alignment Alternatives and Station Location Screening Results[1]												
Alternative	Description		Decision		Rationale to Carry Forward or Withdraw Alternative (P = Primary reason for withdrawal; S = Secondary reason for withdrawal)							
	Alignment	Stations	Carried Forward	Withdrawn	Meets Purpose and Need?	Design Objectives—Operating and Capital Cost	Design Objective—Connectivity/Accessibility	Design Objective—Ridership/Revenue Potential	Land Use—Land Use Compatibility	Constructability—Construction Difficulty/Right-of-Way Acquisition Risk	Natural Resources and/or Environmental Quality	
EB-7	I-880 (south of airport), I-880	San José Diridon Tasman/I-880 Warm Springs BART		X	No	S	P	P	S			Does not meet project purpose and need as it has only limited service to centers of employment with only one station between Fremont and San Jose. Impracticable due to highest relative cost among all area alternatives.
EB-8	I-880 (south of airport), Adjacent to UP Warm Springs Subdivision	San José Diridon Tasman/Great Mall Warm Springs BART		X	No		P		S	P	S	Does not meet project purpose and need as it has only limited service to centers of employment with only one station between Fremont and San Jose. Impracticable due to high constructability/right-of-way risk as a result of need for extensive residential/commercial property acquisition adjacent to UP Warm Springs Subdivision. Greatest noise and visual environmental quality impacts in residential areas adjacent to the UP Warm Springs Subdivision among alternatives that do not cross the refuge.
Fremont to I-680/SR 84												
EBWS-1	I-680 to near I-680/SR 84	Warm Springs BART I-680/SR 84	X		Yes							Least cost and most direct and fastest route among the area alternatives.
EBWS-2	Adjacent to UP Warm Springs Subdivision, tunnel south of Niles Canyon	Warm Springs BART I-680/SR 84	X		Yes							Alternative to an I-680 route.
EBF-1	Adjacent to UP Centerville line, Niles Junction, Niles Tunnel	Fremont Centerville I-680/SR 84		X	Yes			S	P	S	P	In combination with Alternative EB-1, would have greater impacts to the natural environment (due to impact on Don Edwards San Francisco bay National Wildlife Refuge) and greater noise and visual environmental quality impacts (in Fremont Centerville area). Impracticable as would be slowest of all alternatives to reach San Jose and would require substantial property acquisition, particularly in Fremont Centerville area (in combination with EB-1).
Union City to I-680/SR 84												
EBUC-1	Adjacent to UP Niles Subdivision, Niles Tunnel	Union City I-680/SR 84		X	Partial		S		S	P	S	Impracticable due to constructability/right-of-way risk because of need for extensive residential property acquisition adjacent to UP Niles Subdivision. Only partially meets purpose and need due to lack of direct connection at Union City Intermodal Station. Would result in greater level of noise and visual environmental quality impacts and land use incompatibility due to location in residential areas
EBUC-2	In UP Oakland Subdivision, Niles Junction, Niles Tunnel	Union City I-680/SR 84	X		Yes							Provides direct connection to Union City Intermodal Station. Relatively lower constructability risk than Alternative EBUC-1 as it would be located in a lesser-used UP right-of-way that is proposed for acquisition for the Dumbarton Rail Corridor Project and is a priority for Capitol Corridor and the City of Union City.
Tri-Valley												
TV-1	I-680, I-580	I-680/SR 84 Bernal/I-680 Dublin/Pleasanton BART Isabel/I-580		X	Yes					P		Impracticable due to high constructability risk due to extensive construction in and around the freeways and due to the need to accommodate a future BART extension. Constructability and right of way risks high along I-580 where parallel to proposed BART extension to Livermore due to limited median and/or need to route outside freeway right of way in commercial or residential areas.

Altamont Corridor Rail Project Alignment Alternatives and Station Location Screening Results[1]													
Alternative	Description		Decision		Rationale to Carry Forward or Withdraw Alternative (P = Primary reason for withdrawal; S = Secondary reason for withdrawal)							
	Alignment	Stations	Carried Forward	Withdrawn	Meets Purpose and Need?	Design Objectives—Operating and Capital Cost	Design Objective—Connectivity/Accessibility	Design Objective—Ridership/Revenue Potential	Land Use—Land Use Compatibility	Constructability—Construction Difficulty/Right-of-Way Acquisition Risk	Natural Resources and/or Environmental Quality	
TV-2a	I-680, in former SP right-of-way in Pleasanton (aerial), along Railroad Avenue in downtown Livermore (aerial), adjacent to UP east of downtown Livermore	I-680/SR 84 Downtown Pleasanton (SP) Downtown Livermore Vasco Road (UP)	X		Yes							Lowest cost of all alternatives in this area with highest favorable connectivity/accessibility (with connections to two existing ACE stations and two future BART transit connections) and favorable revenue/ridership potential. Pleasanton opposes downtown Pleasanton alignment. Livermore concerned about aerial alignment through downtown Livermore.
TV-2b	I-680, in former SP right-of-way in Pleasanton (tunnel), Railroad Ave (tunnel), in former SP right-of-way east of downtown Livermore	I-680/SR 84 Downtown Pleasanton (SP) Vasco Road (SP)	X		Yes							Provides a downtown alternative to tV-2a that would ameliorate some of the noise and visual environmental quality impacts of Alternative TV-2a through use of tunnels in downtown areas. Pleasanton opposes downtown Pleasanton alignment.
TV-2c	I-680, in UP right-of-way in Pleasanton (tunnel), adjacent to UP right-of-way in Livermore (tunnel), in former SP right-of-way east of downtown Livermore	I-680/SR 84 Downtown Pleasanton (UP) Vasco Road (SP)		X	No	S				P		Does not meet purpose and need of providing for an independent right of way. Impracticable because this is highest cost of all alternatives in this area. Impracticable due to high construction/right-of-way risks associated with need for cooperative agreement with UP or acquisition of right-of-way from UP for active freight line through Pleasanton. Pleasanton opposes downtown Pleasanton alignment.
TV-3	SR 84, Isabel Ave, Railroad Ave, in former SP right-of-way east of downtown Livermore	I-680/SR 84 Vasco Road (SP)		X	Yes					P	S	Impracticable due to high constructability/right-of-way risk because of the need for acquisition of extensive area of private quarry land containing state-designated significant (MRZ-2) mineral resource. Highest level of impact to wetlands and farmlands of alternatives in the area.
TV-4	SR 84, south of Livermore, Vasco, adjacent to UP right-of-way east of downtown Livermore	I-680/SR 84 Vasco Road (UP)	X		Yes							Shortest and fastest route. Avoids community disruption in downtown areas.
Altamont												
A-1	Northern Alignment near I-580		X		Yes							Along an existing transportation corridor (I-580), and less impact on natural resources compared to Alternative A-2.
A-2	Southern Alignment through Patterson Pass		X		Yes							Lower costs and shorter, faster route compared to Alternative A-1.
Tracy												
T-1	Downtown Tracy	Downtown Tracy	X		Yes							Favorable connectivity/accessibility, revenue/ridership potential, and TOD potential because of the downtown station.
T-2	South of Tracy	South Tracy	X		Yes							Opportunities for reduced residential impacts, lower cost, and shorter service times compared to Alternative T-1, although with a tradeoff of potentially fewer TOD opportunities, potentially higher commercial property acquisition, and lower ridership/revenue potential.
San Joaquin River to Stockton												
TS-1	Adjacent to former SP right-of-way west of San Joaquin River, I-5, in former SP right-of-waynear French Camp, in UP right-of-way(w/ 2 rail yards) near downtown Stockton	Lathrop/I-5 Downtown Stockton (Cabral)	X		Yes							Direct route from Tracy to Stockton with the fastest service time, viable freeway intercept station in Lathrop, opportunity for shared alignment with HST.

Altamont Corridor Rail Project Alignment Alternatives and Station Location Screening Results[1]												
Alternative	Description		Decision		Rationale to Carry Forward or Withdraw Alternative (P = Primary reason for withdrawal; S = Secondary reason for withdrawal)							
	Alignment	Stations	Carried Forward	Withdrawn	Meets Purpose and Need?	Design Objectives—Operating and Capital Cost	Design Objective—Connectivity/Accessibility	Design Objective—Ridership/Revenue Potential	Land Use—Land Use Compatibility	Constructability—Construction Difficulty/Right-of-Way Acquisition Risk	Natural Resources and/or Environmental Quality	
TS-2	Adjacent to UP right-of-way west of San Joaquin River, in former SP right-of-way in Lathrop, in UP right-of-way (w/ 2 rail yards) near downtown Stockton	Lathrop/Manteca (Louise Avenue) Downtown Stockton (Cabral)		X	Yes	S					P	Would require approximately 7-mile redundant HST alignment with associated environmental impacts. Secondarily, capital and operational costs due to redundant that would make this alternative substantially more expensive than any other alignment in this area and thus impracticable.
TS-3	Adjacent to UP right-of-way, East of UP right-of-way in Lathrop/Manteca area, in UP right-of-way(w/ 2 rail yards) near downtown Stockton	Lathrop/Manteca (West Yosemite Avenue) Downtown Stockton (Cabral)	X		Yes							Provides combined Lathrop/Manteca station for both Altamont Corridor Rail Project services (San José to Stockton and San José to Modesto), avoids need for redundant HST and Altamont Corridor Rail Project lines in the Lathrop/Manteca area, and has potentially lower noise and visual environmental quality impacts than other alternatives in the area.
TS-4	Adjacent to UP right-of-way west of San Joaquin River, East of UP right-of-way in Lathrop/Manteca area, along Airport Ave., in UP right-of-way near Stockton Cabral station	Lathrop/Manteca (West Yosemite Avenue) Downtown Stockton (Cabral)	X		Yes							Provides combined Lathrop/Manteca station for both Altamont Corridor Rail Project services (San José to Stockton and San José to Modesto), avoids need for redundant HST and Altamont Corridor Rail Project lines in the Lathrop/Manteca area, and avoids constructability risks associated with the two rail yards near downtown Stockton by routing along Airport Way.
San Joaquin River to Ripon/Escalon												
TM-1a	In former SP right-of-way in Lathrop area, turn back, Adjacent to UP Fresno Subdivision to Modesto	Lathrop/Manteca (Louise Avenue)		X	Yes	S					P	Would require approximately 7-mile redundant HST alignment with associated environmental impacts. Secondarily, capital and operational costs due to redundant that would make this alternative substantially more expensive than any other alignment in this area and thus impracticable.
TM-1b	Adjacent to UP right-of-way in Lathrop area, turn back, adjacent to UP Fresno Subdivision to Modesto	Lathrop/Manteca (West Yosemite Avenue)	X		Yes							Provides combined station for both Altamont Corridor Rail Project services (San José to Stockton and San José to Modesto) and avoids redundant project and HST alignments.
TM-2a	UP, SR 120, BNSF to E of SR 99 or BNSF to Modesto	Manteca/SR 120	X		Yes							Only alternative that would connect to the north-south Sacramento to Merced HST Section BNSF alignment (if selected). If the BNSF alignment is not carried forward in the HST evaluation process, then this alternative would be dismissed from further consideration.
TM-2b	SR 120, UP to Modesto	Manteca/SR 120	X		Yes							Most direct route to Modesto of all area alternatives with associated shorter service times, and would minimize property acquisition by being located within SR 120 right-of-way in the Manteca area.

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